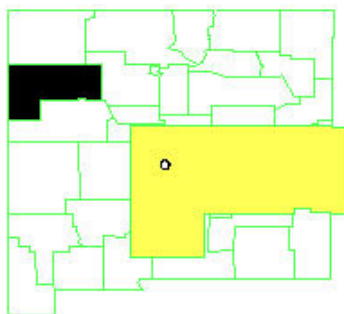


UNITED NUCLEAR CORPORATION (MCKINLEY COUNTY NEW MEXICO

EPA ID# NMD030443303
Site ID: 0600819



EPA REGION 6 CONGRESSIONAL DISTRICT 03

Contact:
Mark Purcell 214.665.6707

Other Names:
UNC Mining and Milling
Church Rock Mill

Updated: January 2006

Current Status

Remedial activities are being conducted by the United Nuclear Corporation (UNC) in accordance with an EPA Unilateral Administrative Order under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) to mitigate tailings seepage in three shallow ground-water zones at the UNC Church Rock Superfund site (Site). UNC utilizes extraction wells to pump contaminated ground water and evaporation ponds for water disposal. UNC also monitors the performance of the remedial systems on a quarterly basis to evaluate the effectiveness of those systems in achieving the established cleanup standards and to delineate the current extent of seepage impacts in ground water.

The ground-water remedial systems have been shut down because they did not function as were intended by the 1988 EPA Record of Decision (ROD). Operational results for the extraction systems for Zone 1 and Zone 3 of the Upper Gallup Sandstone Formation demonstrated significant declines in pumping rates over time due to insufficient natural recharge of the aquifers. The loss in saturation reached levels that did not support pumping and the systems were shut down. The Zone 3 system was also shut down because it was accelerating the movement of the contaminated water, rather than containing it. For the Southwest Alluvium, the extraction system provided partial hydraulic containment to tailing-seepage migration, but there was little progress in achieving Site cleanup standards over time. The Southwest Alluvium extraction system was temporarily shut down to perform a natural attenuation test. The UNC has completed the natural attenuation test, along with a technical impracticability (TI) evaluation. The UNC has recommended that EPA consider monitored natural attenuation (MNA), along with a TI Waiver and institutional controls as remedial alternatives for Zone 1 and the Southwest Alluvium. The EPA is currently evaluating UNC's recommendation.

In 2004 and 2005, UNC tested hydraulic fracturing in Zone 3 in an attempt to enhance the recovery of ground water. The Zone 3 extraction well system was restarted and its performance is currently being evaluated as part of a full-scale test. In October 2005, UNC submitted a proposal to conduct a pilot study for *in-situ* alkalinity stabilization in Zone 3. The pilot study would evaluate the use of alkalinity injection wells, in addition to the extraction wells, to further enhance the ongoing remediation of Zone 3. The pilot study would test the injection of alkalinity-rich ground water from an unimpacted part of the Southwest Alluvium into the Zone 3 Aquifer. The proposed pilot study is currently being reviewed.

In a 2003 Five-Year Review of the remedy, the EPA directed UNC to perform a Site-wide Supplemental Feasibility Study (SFS) in order for EPA to investigate and evaluate possible remedial alternatives and to support a possible ROD Amendment or Explanation of Significant Differences, as appropriate. As part of the Review, the EPA also recommended that the SFS examine the establishment of institutional controls to restrict the use of contaminated ground water. A draft SFS was submitted by UNC and commented on by EPA in 2005. The EPA is currently evaluating the feasibility of establishing institutional controls on tribal land to restrict the use of contaminated ground water.

Benefits

- The surface reclamation actions performed by UNC under the direction and oversight of the U.S. Nuclear Regulatory Commission (NRC) at the Site between 1988 and 1996 have stabilized the mill tailings and have protected the Rio Puerco from contamination spills like the one that occurred in 1979.
- Portions of the Site are now used for animal grazing by local residents, and environmental and economic benefit to the Navajo Nation.

National Priorities Listing (NPL) History

Site Hazard Ranking System Score: 30.36

Proposed Date: 12/30/82

Final Date: 9/08/83

Site Description

Location: The Site is located 17 miles northeast of Gallup, New Mexico and on the southern border of the Navajo Indian Reservation.

Population: The surrounding area is sparsely populated, with the nearest residence located 1.5 miles north of the Site.

Setting: The Site includes a former uranium ore processing mill and tailings disposal area, which covers about 25 and 100 acres, respectively. The tailings disposal area is subdivided into three cells by dikes. The cells are identified as the South Cell, Central Cell, and North Cell. The tailings cells have been capped with an interim radon barrier cover as part of the reclamation activities directed by the NRC. Two evaporation ponds have been constructed on top of the cells as part of the EPA's ground-water remedy.

The surrounding lands include Indian Tribal Land, Indian Allotment Land and UNC-owned property. The land use near the Site is primarily grazing for sheep, cattle and horses. It is noted that the Ft. Defiance Housing Corporation, in conjunction with the U.S. Department of Housing and Urban Development and the Navajo Housing Authority, is planning to develop a 1000-unit housing complex, called the Springstead Estates Project, in the vicinity of Springstead (seven miles to the southwest of the Site).

Four water wells are within a 4-mile radius, the nearest being 1.7 miles northeast of the Site; however, nearby residents generally have used bottled water for drinking since the well water has a bad taste.

Hydrogeology: The shallow water-bearing zones beneath the Site, which have been impacted by tailings seepage, are Zone 1 and Zone 3 of the Upper Gallup Sandstone Formations and the shallow alluvium (referred to as the Southwest Alluvium). Underlying the Upper Gallup Sandstone Formation is the Mancos Shale. The Mancos Shale acts as an aquitard to prevent or retard the downward migration of contamination.

Waste and Volumes

- The principal pollutants include acidic mill tailings.
 - Total dissolved solids: >60,000 parts per million (ppm) in tailings liquid
 - Sulfate: >40,000 ppm in tailings liquid
 - Thorium: 40,000 pico curies/liter (pci) in tailings liquid

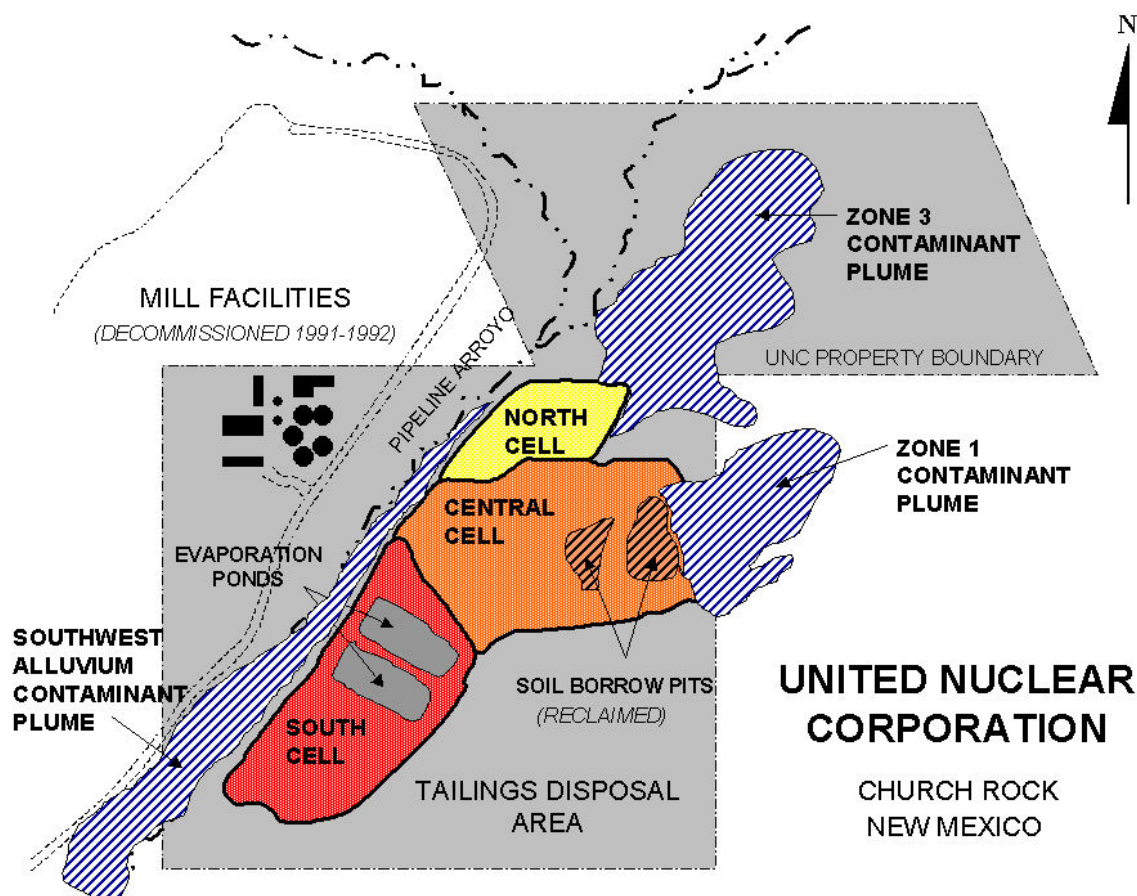
- Radium: 24 pci/l in tailings liquid
- Aluminum: >2,000 ppm in tailings liquid
- Ammonia: >5,000 ppm in tailings liquid
- Iron: >4,000 ppm in tailings liquid

- 4.7 million cubic yards of tailings

Record of Decision

EPA signed ROD on September 30, 1988.

Site Map



Contacts

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EPA Region 6 Superfund Toll Free Number:		800.533.3508
Prime Contractor:	None	